

**CIVIL GPS SERVICE INTERFACE COMMITTEE
INTERNATIONAL INFORMATION SUBCOMMITTEE**

NATIONAL REPORT OF POLAND

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Country Point of Contact of Poland

44nd Meeting IISC CGSIC
Long Beach, CA, USA
20-21 September 2004

NEWS FROM POLAND

- **Permanent GPS/GLONASS stations in Poland:**
 - * **IGS STATIONS**
 - * **EPN (EUREF) STATIONS**
 - * **STATIONS OF THE IGLOS PROJECT**
 - * **ACTIVE GEODETIC NETWORK (ASG-PL)**
 - * **STATIONS OF THE PROJECT CERGOP**
 - * **STATIONS OF THE PROJECT EUPOS**
- **EUREF Local Analysis Centre (IGGA WUT)**
- **Conferences on satellite GNSS systems in Poland**

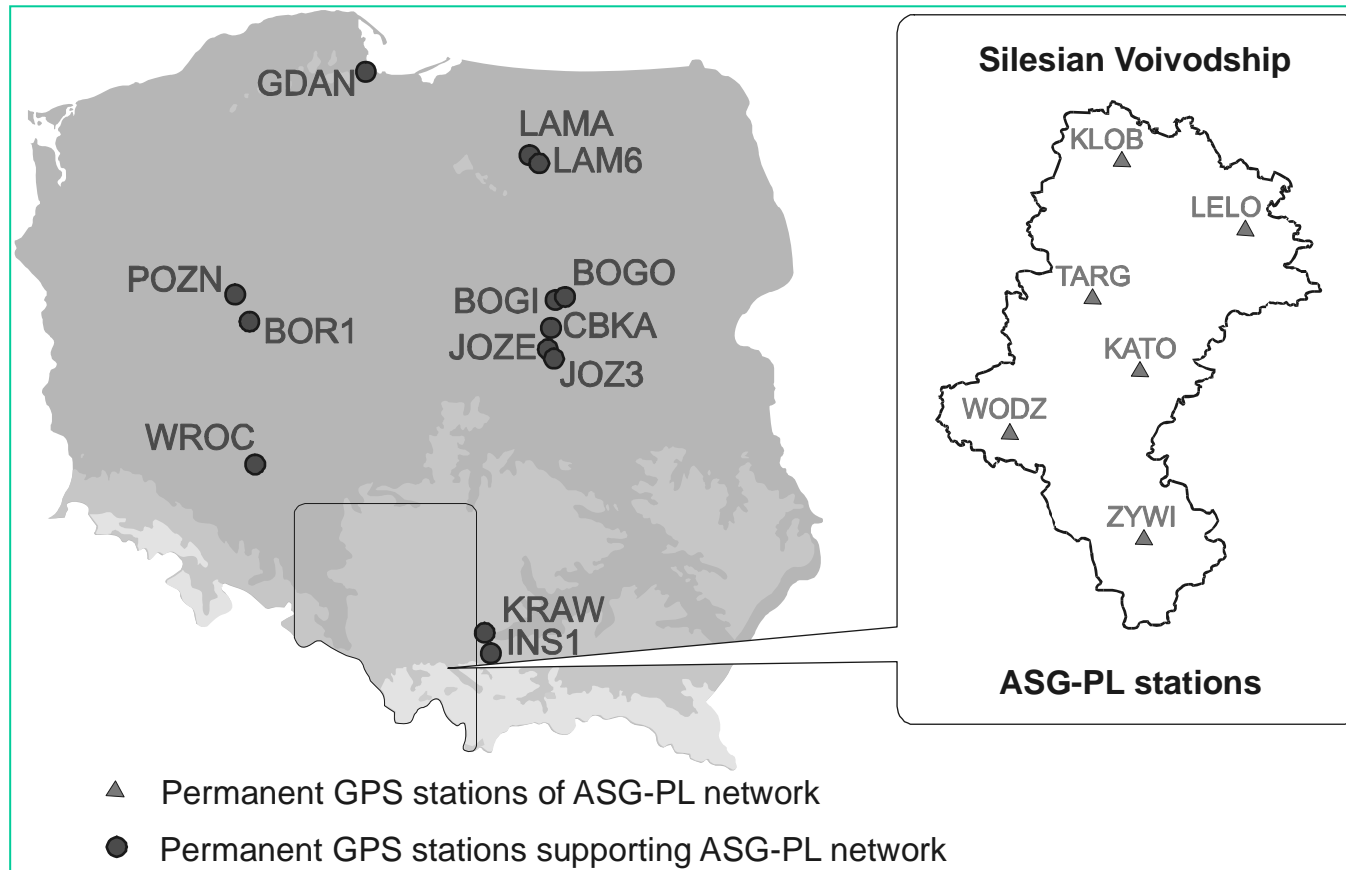
PERMANENT GPS STATIONS IN POLAND

| Stations | Number of |
|------------------------------------------------|------------------|
| stations | |
| IGS STATIONS | 6 |
| EPN (EUREF) STATIONS | 10 |
| STATIONS OF THE IGLOS PROJECT | 3 |
| ACTIVE GEODETIC NETWORK (ASG-PL) | 7 |
| STATIONS OF THE PROJECT CERGOP | 4 (plus 2 epoch) |
| STATIONS OF THE PROJECT EUPOS construction) | 75 (in |
| DGPS MARITIME | 2 |

IGS/EUREF network of permanent stations in Poland

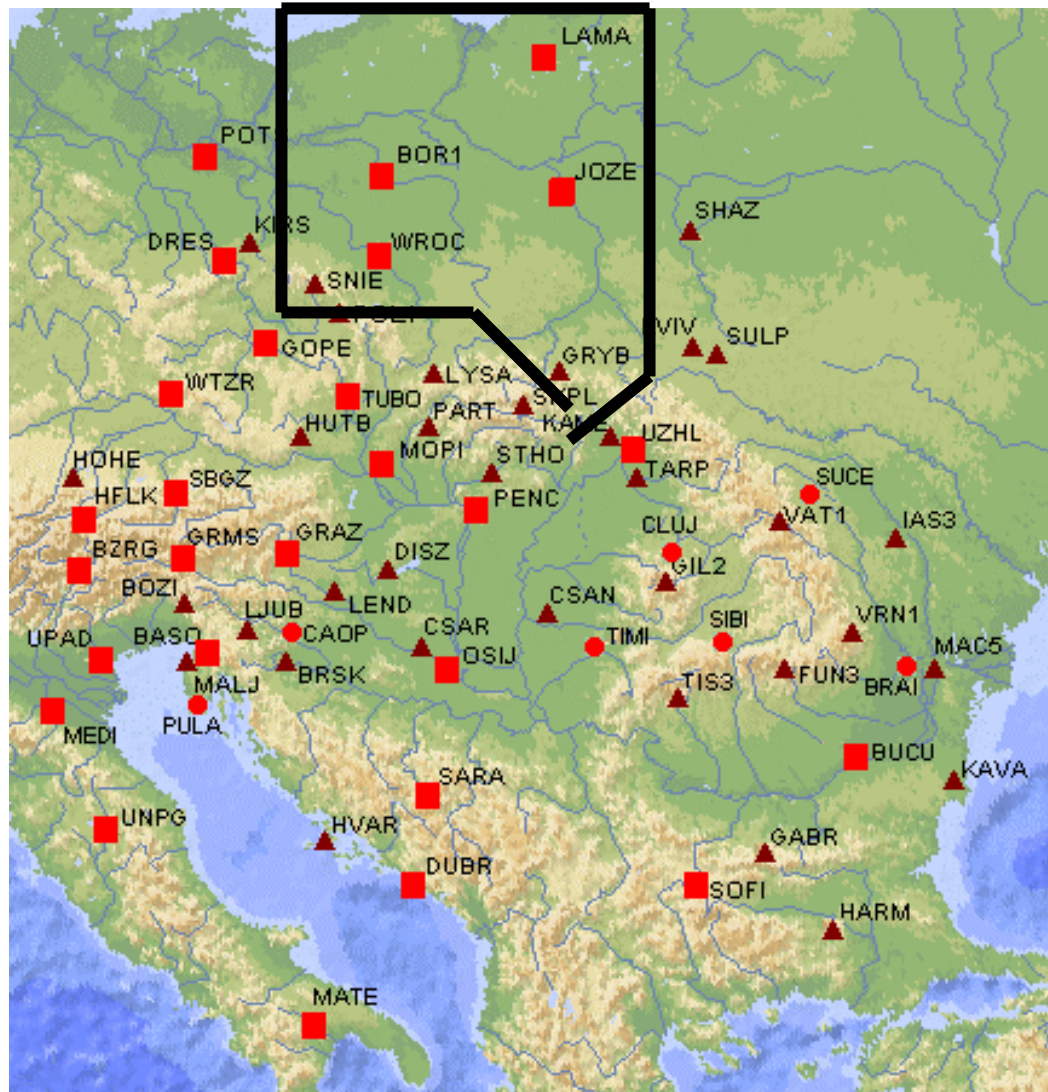


STATIONS OF THE POLISH ACTIVE CONTROL NETWORK (ASG-PL)



POLISH GPS STATIONS OF THE CEGRN

(rectangles – permanent sites, triangles – epoch sites,
circles – proposed permanent sites)



POLISH PART OF THE PROJECT EUPOS



PROCESSING CENTRE AT THE IGGA WUT

Processing Centre at the
Institute of Geodesy and Geodetic Astronomy
Warsaw University of Technology
operates as:

- **EUREF Local Analysis Centre (WUT EUREF LAC)**
(Data from 45 permanent GPS stations of EPN are processed every day)
- **CERGOP Data Processing Centre**

GPS EPN STATIONS PROCESSED EVERY DAY BY IGGA WUT PROCESSING CENTRE



CONFERENCES ON SATELLITE GNSS SYSTEMS

- **Conference of the Working Group for GalileoApp, (Galileo Joint Undertaking, ESA), Warsaw, 14 May 2004;**
- **Conference on European System of Satellite Navigation, Warsaw, 29 June 2004;**
- **Conference on Satellite methods of positioning for geodesy and navigation, Cracow, 23-24 September 2004;**
- **2nd CERGOP and CEGRN Consortium Working Conference, Warsaw, 29-30 September 2003**

OTHER ACTIONS

- **GPS campaigns in Tatra Mts and Sudetes Mts,**
- **Establishment/development of permanent reference stations in several regions (Katowice, Warszawa, Lodz, Bydgoszcz and others),**
- **A working coordinating group for establishment of satellite reference stations has been created by appointment of the Head Office for Geodesy and Cartography (representation of interested regions and users).**

**CENTRAL EUROPEAN INITIATIVE
WORKING GROUP SCIENCE AND TECHNOLOGY
SECTION C "GEODESY"**

GPS NEWS FROM CEI

Janusz Sledzinski, FRIN

International Coordinator of the CEI WGST Section C "Geodesy"

44th Meeting IISC CGSIC

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GPS NEWS FROM CEI

- Second phase of the European Project **CERGOP-2/Environment** (Central Europe Regional Geodynamics Programme) supported financially by the European Commission;
- Activities in the frame of the **CEGRN Consortium** (Central Europe GPS Reference Network);
- **GPS projects** presented at the EGU Symposium Nice, France, April 2004.

CEI was established in 1989 at the level of Ministers of Foreign Affairs of Central European countries

PRESENT CEI MEMBERSHIP

(status: 1 September 2003)

- Albania,
- Austria,
- Belarus,
- Bosnia
and Herzegovina,
- Bulgaria,
- Croatia,
- Czech Republic,
- Hungary,
- Italy,
- Macedonia,
- Moldova,
- Poland,
- Romania,
- Slovakia,
- Slovenia,
- Ukraine,
- Yugoslavia.

Geosciences are represented in CEI in the WG “Science and Technology”

- **Section A** “Geology”,
- **Section B** “Geophysics”,
- **Section C** “Geodesy”

SECOND PHASE OF THE PROJECT CERGOP

(Central Europe Regional Geodynamics Programme)

**"A Multipurpose and Interdisciplinary
Sensor Array
for Environmental Research
in Central Europe
(CERGOP-2/Environment)"**

SECOND PHASE OF THE CERGOP-2/ENVIRONMENT (Central Europe Regional Geodynamics Programme)

- ◆ Project initiated in 1994. The first phase of the Project, supported financially by EC, was concluded in 1998 and now the second phase of the Project is being realised. Second phase of the Project CERGOP-2/Environment "A Multipurpose and Interdisciplinary Sensor Array for Environmental Research in Central Europe (CERGOP-2/Environment)" was accepted in April 2003 by the European Commission and will be financially supported during the next three years until 2006.
- ◆ 13 countries participate in the second phase of the Project: Austria, Bosnia and Herzegovina, Bulgaria, Croatia, the Czech Republic, Germany, Hungary, Italy, Romania, Poland, Slovakia, Slovenia and Ukraine

SECOND PHASE OF THE CERGOP-2/ENVIRONMENT

(Central Europe Regional Geodynamics Programme)

- ◆ **Project covers a considerable area of Europe (15%) and consists in upgrading and densification of the existing CERGOP network - at the moment we have 63 GPS permanent and epoch stations in Central and Southern Europe.**
- ◆ **GPS campaigns:**
 - ◆ **The epoch GPS CERGOP-2 campaigns are organised in 2003 and 2005,**
 - ◆ **Local campaigns and their interpretations will be carried out during the whole period.**
- ◆ **As a result we expect**
 - * **a network set-up operable for the next decade;**
 - * **velocity field and strain maps for future geodynamical investigations and hazard mitigation;**
 - * **data for climate research and weather forecast;**
 - * **data for real time navigation,**
 - * **a seamless data-bank for scientific and public access.**

SECOND PHASE OF THE CERGOP-2/ENVIRONMENT

(Central Europe Regional Geodynamics Programme)

- ◆ At the moment the total number of stations of the CERGOP-2 is 63. About thirty CERGOP-2 points are permanent stations.
- ◆ Seven monitoring GPS CEGRN campaigns were performed in 1994, 1995, 1996, 1997 (CERGOP-1) and in 1999, 2001 and 2003 (CERGOP-2).
- ◆ CERGOP Data Centre is hosted by Graz Lustbühel Observatory, Austria.
- ◆ Five institutes have declared to maintain and operate CERGOP Processing Centres
 - * FÖMI, Satellite Geodetic Observatory, Penc, Hungary;
 - * Institute of Geodesy and Geodetic Astronomy of the Warsaw University of Technology, Warsaw, Poland;
 - * Agenzia Spaziale Italiana Centro di Geodesia Spaziale, Matera, Italy;
 - * Space Research Institute of the Austrian Academy of Sciences, Austria;
 - * Department of Theoretical Geodesy of the Faculty of Civil Engineering of the Slovak University of Technology, Bratislava, Slovakia.

Present and some proposed sites of the CEGRN

(rectangles – permanent sites, triangles – epoch sites,
circles – proposed permanent sites)



CERGOP-2

WORKPACKAGES

- **WP.1. Internet based seamless database for environmental studies (chaired by Austria),**
- **WP.2. Station quality assessment and upgrade (Hungary),**
- **WP.3. Periodic determination of the reference frame CEGRN (Hungary),**
- **WP.4. Creation of new permanent observation facilities in CEI countries (Germany),**
- **WP.5. GPS data analysis and the definition of reference frames (Slovakia),**
- **WP.6. Analysis of the long-term coordinate time series (Italy, Padova),**
- **WP.7. Geokinematical modelling and strain analysis (Slovakia),**
- **WP.8. Impact of atmospheric effects on GPS height determination (Czech Republic),**
- **WP.9. GPS based rapid service for meteorology and hazard assessment (Italy ASI),**
- **WP.10. Geodynamics of Central Europe (Poland),**
- **WP.10.1. Crustal movements in the Eastern Alps and Northern Mediterranean (Slovenia),**
- **WP.10.2. Three dimensional plate kinematics in Romania (Romania),**
- **WP.10.3. Integration of present geodynamic investigations in the Pannonian Basin (Hungary),**
- **WP.10.4. International geodynamic test area Plitvice Lakes (Croatia),**
- **WP.10.5. Geodynamics of the Tatra Mts. (Poland, Slovakia),**
- **WP.10.6. Geodynamics of the Northern Carpathians (Ukraine),**
- **WP.10.7. Geodynamics of the Balkan Peninsula (Bulgaria).**

CEGRN CONSORTIUM

**Central European
GPS Geodynamic Reference Network
CONSORTIUM**

CEGRN CONSORTIUM

(Central European GPS Geodynamic Reference Network)

Established on 5 September 2001

by institutions participating in the CERGOP Project

- **with the aim:**
- to maintain, currently upgrade and develop the CEGRN (Central Europe GPS Reference Network),
- to perform every second year coordinated monitoring satellite GPS campaigns,
- to maintain the CERGOP (CEGRN) Processing Centres;
- **The Consortium shall**
- agree on programme of development of scientific potential of the CEGRN,
- formulate and submit proposals for new scientific initiatives,
- ensure the long-term continuation of the Project CERGOP and the maintenance of CEGRN high quality data products,
- serve as a virtual large-scale facility for a large number of projects in Central Europe,
- contribute to further development of the links with universities and regional education centres.

CEGRN CONSORTIUM MEMBERSHIP

- Space Research Institute, Austrian Academy of Sciences, **Graz, Austria**
- Geodesy Department of the Faculty of Engineering, **Sarajevo, Bosnia and Hercegovina**
- Central Laboratory for Geodesy, Bulgarian Academy of Sciences, **Sofia, Bulgaria**
- University of Zagreb, Faculty of Geodesy, **Zagreb, Croatia**
- Research Institute of Geodesy, Topography and Cartography, **Zdiby, Czech Republic**
- Faculty of Civil Engineering and Geodesy, University of Bundeswehr, **Munich, Germany**
- Institute of Geodesy Cartography and Remote Sensing (FÖMI), **Budapest, Hungary**
- Centro di Geodesia, Agenzia Spaziale Italiana, Matera, **Italy**
- Department of Geology, Paleontology and Geophysics, University of **Padova, Italy**
- Institute of Geodesy and Geodetic Astronomy, Warsaw University of Technology, **Warsaw, Poland**
- The Institute of Cadastre, Geodesy, Photogrammetry and Cartography, **Bucharest, Romania**
- Dept. of Theoretical Geodesy, Slovak University of Technology, **Bratislava, Slovakia**
- Faculty of Civil and Geodetic Engineering, University of **Ljubljana, Slovenia**
- Chair of Geodesy and Astronomy, Lviv Polytechnic National University, **Lviv, Ukraine**

CEGRN PROCESSING CENTRES

- **FÖMI, Satellite Geodetic Observatory, **Penc**, **Hungary**,**
- **Institute of Geodesy and Geodetic Astronomy
of the Warsaw University of Technology, **Warsaw**, **Poland**,**
- **Agenzia Spaziale Italiana Centro di Geodesia Spaziale,
Matera, **Italy**,**
- **Space Research Institute of the Austrian Academy
of Sciences, **Graz**, **Austria**,**
- **Department of Theoretical Geodesy of the Faculty
of Civil Engineering of the Slovak University of Technology,
Bratislava, **Slovakia**.**

COOPERATION CEI - EGU
(European Geosciences Union)

EGU/CEI SYMPOSIUM G11

“GEODETIC AND GEODYNAMIC PROGRAMMES OF THE CEI”

NICE, FRANCE

24-30 APRIL 2004

(40 papers on GPS applications, 74 authors from 13 countries)

NEXT EGU/CEI SYMPOSIUM (G9)

is scheduled for 25-30 April 2005

in Vienna, Austria